

# Economic burden of asthma in Thailand

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Asthma is an important health problems worldwide and the prevalence is increasing in most part of the world<sup>1</sup> including Thailand. The prevalence of asthma in Thai children is approximately 10%.<sup>2</sup> The impact of this disease on patients' health and quality of life is well recognized for a long time and recently there is an awareness of economic burden of asthma in many countries such as the U.S.A.,<sup>3-5</sup> some European countries,<sup>6</sup> and some Asian countries.<sup>7</sup> Despite the availability of effective preventive therapy, costs associated with asthma are increasing. The research on economic outcomes will help to determine whether an effective treatment is also a cost-efficient and to allow government and health care delivery organizations to ensure appropriate use of resources. There are two types of costs contributing to the total cost of an illness, i.e., direct and indirect costs. Direct costs include both medical and non-medical expenses associated with the disease. Medical direct costs include those expenses generated in the disease's prevention, treatment, and rehabilitation. Non-medical direct costs include transportation to and from the health provider and purchase of home health care. Indirect costs include days missed from work, school days lost (caretaker needs to refrain from usual daily activities to care for the child), and loss of future potential earnings as a result of premature death.<sup>8</sup> In Thailand, a study on cost of asthma has been carried out in Chiang Mai and Lumphun, two northern cities of Thailand, as a part of a study on effects of air pollution on asthmatic symptoms and lung function funded by the Thailand Research Fund.<sup>9,10</sup> In this study, the average total per person annual cost in adults was 16,287.27 Baht

(approximately USD 525.4) consisting of direct cost of 15,299.87 Baht (USD 493.5, 93.9%) and indirect cost of 987.40 Baht (USD 31.9, 6.1%). The cost of asthma in children was less than in adults. The average total, direct and indirect costs (per person) in children were 8,009.37, 6,723.69 and 1285.69 Baht (USD 258, 216, 41), respectively and the direct cost was 83.95% of the total cost. In the year 2008, there were 13.7 million children in Thailand.<sup>11</sup> Approximately 1.37 million children suffered from asthma, so the economic burden of asthma in children for Thailand in the year 2008 was 10,972.36 million Baht (about USD 353.9 million) and would be double to triple for all Thai asthmatic patients (children and adults). This burden was much less than that in the U.S.A.,<sup>5</sup> whereas the total, direct and indirect costs of asthma in adults were USD 4,912, 3,180 and 1,732 /patient/year. From the previous study in the U.S.A., costs of asthma varied greatly across the regions,<sup>12</sup> which would be true in Thailand too. The costs of asthma in Bangkok, the capital city of Thailand, would be much higher than those in Chiang Mai and Lumphun and would be a huge economic burden for Thailand. A multi-center study on clinical outcomes, quality of life and economic outcomes of long term management of Thai asthmatic children is on-going and the results will help improving the management of asthma in Thailand. The percent of direct costs associated with hospitalization costs appear to be inversely correlated with the percent of direct costs associated with medications. Adequate treatment of asthma can reduce hospitalization costs while causing an increase in medication costs since most asthmatic patients tend to be undertreated.<sup>13,14</sup> Moreover, the costs of asthma depends on severity of the disease (i.e. the more severe, the higher costs)<sup>15,16</sup> and age group of the children (i.e. more percent of costs on hospitalization in preschool children but more percent of costs on medications in school children).<sup>17,18</sup> Awareness of all these factors can guide efforts to reduce the costs of asthma.

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